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In the article there is presented no adequate reason for regarding this third view of the case as untenable. We have the declaration quoted, from which it may be inferred that the first of the three alternatives is believed to be appropriate to the case. Possibly the term "normal" prefixed to value may be held to exclude any case except where decreasing returns occur. But if the term "normal" be used in reference to adjustments of productive equipment to consumptive requirements, such as are feasible in a long period, though not in a short period, conditions of increasing return cannot be refused consideration, and that both for the industry as a whole and for the individual competitors who contribute to the supply. This being the case, the assertions of the paragraph quoted cannot be applicable to all cases of normal value.

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CANAL ENLARGEMENT IN NEW YORK STATE.

On November 3, 1903, the people of New York State, by a vote of 673,010 to 427,698, authorized the expenditure of $101,000,000 for the reconstruction and enlargement of the Erie and other trunk canals in that State. This action definitively inaugurates a project for inland water transportation in the United States which will involve a larger outlay than the extensive internal navigation improvements recently authorized in France, and may produce even greater economic results than the ship canal to connect the Atlantic and Pacific.

In a previous number of this *Journal*[1] there was presented an account of the decline in traffic on the New York canals, the effect of this decline on the commerce of the port of New York, and the initial steps in presenting a plan for canal improvement which forms the basis of the project just adopted. It is the purpose of the present note to

[1] "The New York Canals," by John A. Fairlie, vol. xiv., February, 1900.

trace briefly the history of the plan since that time, and to describe the project for improvements which is now authorized.

Briefly restated, the plan recommended in 1900 by the committee appointed by Governor Roosevelt was for the reconstruction of the Erie Canal, with important changes from the present route, so that it should be navigable by barges drawing ten feet of water and having a capacity of a thousand tons, or four times that of the largest boats which can use the present canal. Realizing the importance of the most thorough preliminary investigation, the committee recommended that the first step should be a careful engineering survey of the proposed routes, on which detailed and accurate estimates of cost could be based. This recommendation was adopted by the legislature of 1900, and an appropriation of $200,000 was made for this investigation and the preparation of estimates under the direction of the State Engineer and Surveyor.

After a year's work this report on the engineering features of several alternative projects was submitted on February 12, 1901. Had Governor Roosevelt remained in office, it is possible that energetic efforts would have been made to secure further legislative action at that time. But Governor Odell, who succeeded Mr. Roosevelt in January, 1901, was not prepared to urge any specific plan; and in the face of threatened opposition from many members of the legislature nothing further was done during that year.

At the legislative session in 1902 Governor Odell suggested a compromise plan for the completion of the limited improvement begun in 1895 with the construction of locks adapted to the larger canal, which might be built at a later time. Some members of the legislature who were anxious for canal improvement were disposed to accept this compromise; but others were convinced that the smaller improvement was entirely inadequate, and necessarily involved a wasteful expenditure of millions of dollars. By a combination of the members from New York City, who insisted on the larger project, with those who opposed any canal improvement, the compromise plan was defeated, and further action postponed for another year.

In the election campaign of 1902 the Republican platform contained an indefinite plank in favor of canal improvement, while the Democratic platform strongly indorsed the plan for the thousand-ton barge canal; but during the campaign both of the leading candidates for governor definitely announced themselves in favor of the barge canal project. Accordingly, when the legislature met in January, 1903, Governor Odell, who had been reelected, presented the larger project with his approval. Several factors led to a revision and substantial increase in the earlier estimates. It was now proposed to enlarge the Oswego and Champlain Canals to the same capacity as the Erie Canal. Prices of labor and material had advanced from the rates in force when the estimates of 1901 were calculated. Revised estimates by the State Engineer, after making allowances for these factors and including 20 per cent. for supervision and contingencies, showed a total cost of $101,000,000. After considerable discussion and against a strong opposition, mainly from those members of the legislature whose districts were not on the line of the canals, a statute was passed, which became law on April 7, 1903, providing for the issue of bonds to the amount of $101,000,000 for the enlargement of the canals, if approved (as required by the State constitution) by popular vote at the general election in November.

An active campaign was carried on before the election, both by the friends and opponents of the project. The division of opinion crossed party lines, and, as the final vote indicates, followed sectional districts to a large degree. On both sides logical economic arguments were combined with appeals to local and class interests. In opposition to the project, it was urged in some quarters that the reduction of railroad rates made unnecessary and impracticable any attempt to revive water transportation; while in other quarters it was held that the proposed improvement was inadequate, and would only delay or prevent the construction of a ship canal from the lakes to the Atlantic. In favor of the plan, it was shown that railroad rates in the last year or two had shown a tendency to increase; while it was held that the ship canal would not only cost vastly more to construct, but would offer no additional economy in transportation to the barge canal. On the side of the canal were the export interests of New York City, the commercial interests of Buffalo, and the labor unions, which realized the demand for labor which such an undertaking would cause. In opposition were the agricultural communities, especially those at a distance from the canal routes, which could see only the taxation to be levied for the work with no direct benefit to themselves.

At the polls the result, as has been noted, showed a victory for the proposed improvement by the decisive majority of 245,312 in a total vote of over a million. Many parts of the State showed a heavy vote against the plan, and the opposing views of different localities is well illustrated by the geographical distribution of the vote. The bulk of the vote in favor of the improvement came from the eight counties near New York Harbor and the three counties near Buffalo; while only five other counties (Oswego, Cayuga, Albany, Essex, and Ulster) gave a majority for the scheme. Among the forty-five counties voting against the proposition were Onondaga, which includes the city of Syracuse, and Monroe, which includes the city of Rochester. In the last-named case the vote was three to one against the plan. These results are summarized in the following table:—

	For the Plan.	*Against the Plan.*
8 counties near New York	483,331	73,855
3 counties near Buffalo	50,649	14,780
5 interior counties	40,090	30,908
16 counties for the plan	574,070	119,543
45 counties against the plan	98,940	308,155
Total vote	673,010	427,698

The plan now authorized is usually called one for canal enlargement or canal improvements, but these terms fail to indicate fully what is to be done. More than one-half of the new water routes will be through river channels and lakes; and the canal work involves the construction of new channels and locks, in many places along different routes from the present canals. On the principal route, or Erie Canal, from the Hudson River to Lake Erie, the Mohawk River will be utilized for most of the distance from Waterford to some miles west of Rome. After a short canal section the new route will cross Oneida Lake, and follow the Oneida and Seneca Rivers to Crusoe Creek, about thirty miles west of Syracuse. From this point the enlarged canal will proceed, in the main, along the line of the present canal to the Niagara River at Tonawanda, that river being used for the remainder of the distance to Buffalo. The new route will remove the canal from the business districts of Syracuse and Rochester, but will furnish each of these cities with larger facilities.

The improvement of the Oswego Canal consists practically in making navigable the Oswego River from its junction with the new Erie Canal route to Lake Ontario, furnishing a waterway from that lake to the Hudson River with only thirty-five miles of canal. The new route to Lake Champlain will utilize the Hudson River from Troy to Fort Edward, and thence will follow the present Champlain Canal to the lake.[1]

On all of these routes a channel with a minimum depth of 12 feet is to be constructed. On river sections the minimum bottom width will be 200 feet; on canal sections, 75 feet. The locks, which are the principal factors in limiting the size of vessels, will be 328 feet in length, 28 feet in width, and 11 feet minimum depth. These will permit

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[1]

	River and Lake.	*Canal and Locks.*	*Total.*
Erie Canal	174.83 miles	167.83 miles	342.66 miles
Oswego Canal	18.04 "	4.80 "	22.84 "
Champlain Canal	38.18 "	28.16 "	66.34 "
Total	231.05 "	200.79 "	431.84 "

the passage at one time of two boats, each 150 feet long, 25 feet wide, drawing 10 feet of water; and such barges will be the most economical unit for transportation on the new water routes. The size of the barges and the location of the new routes involves the disappearance of the primitive system of horse towage, and requires the use of steam or other mechanical motive power. It is expected that vessels will usually go in fleets of four, one steamer towing three barges. Under these conditions it is estimated that the trip from Buffalo to New York can be made in five days in place of ten days or two weeks, as at present, and at a cost of transportation of 26 cents per ton.

No further legislative action is necessary to supplement the popular approval before beginning work on this extensive plan. The estimates already made cover in detail everything necessary for the construction operations, including not only excavation, locks and dams, but also bridges, harbors at Rochester and Syracuse, water supply, and navigation buoys and lights. The statute of last spring authorizes the letting of contracts, and directs the Comptroller to issue bonds as needed for making payments as the work progresses. Careful provisions are made to secure public bidding and otherwise to prevent any mismanagement in connection with contracts. The governor is authorized to appoint a board of five expert civil engineers to advise the State officers during the progress of the work. These appointments and the first contracts should be made early in 1904, and be followed before long by active operations. No definite statement can yet be made as to the length of time it will take to complete the work. Probably it will be at least five years, while it may be ten years before the whole task is accomplished.

Under the statute as passed, the funds for this work are to be raised by eighteen-year bonds of the State, drawing 3 per cent. interest and payable—as required by the constitution—by a direct general property tax, levied over the whole State. Recent tax legislation in New York has, however, aimed at abandoning the general property tax as a source of State revenue; and in his message to the legislature in January, 1904, Governor Odell recommends a somewhat complicated plan for raising funds for the canal work partly by indirect taxation and partly by county loans to be repaid later by the State. Whether this or any other method of raising the funds will be adopted it is too early to state. But, if any change is made from the methods prescribed in the statute approved by popular vote, it may result in delaying the commencement of active operations, as the new methods may have to be likewise submitted for popular approval, and will require the adoption of constitutional amendments before they can be put into effect.

In the previous article already referred to, some mention was made of the economic results to be expected from the construction of these water routes. It would be possible to repeat and enlarge on these future prospects, and to show from the continued rapid development of the internal commerce of the United States, both on the great lakes and on the trunk railroads, that these prospects are brighter and more certain than they seemed three years ago. But a full discussion of these considerations must await another opportunity. It may be noted here, however, that the new transportation routes will mean vastly more than a reduction in freight rates on export grain; that they promise even greater results in the transportation of steel, the development of steel manufacture in New York State, and the opening of through water transportation from the lakes to New England via Long Island Sound, and to the Delaware and Chesapeake Bays. And as a single indication of the rapid development of lake commerce, which this project will connect with the sea, it may be observed that the traffic of St. Mary's Fall Canal has risen from 21,000,000 tons in 1898 to the stupendous total of 35,000,000 tons in 1902.

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